

DETAILED ACTION

Status of Claims

1. This action is in reply to the application filed on 22 December 2004 and preliminary amendment filed on 22 December 2004.
2. Claim 5 has been cancelled.
3. Claims 1-4 and 6-8 are currently pending and have been examined.

Information Disclosure Statement

4. The Information Disclosure Statement filed on 22 Dec 2004 has been considered. An initialed copy of the Form 1449 is enclosed herewith.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Steering wheel with controller for operating a vehicle-mounted device.

Claim Objections

6. Claim 1 objected to because of the following informalities: "a rotating section ... that is substantially a same as ..." should read "a rotating section that is substantially *the* same as ...".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Examiner's Note: The Examiner has pointed out particular references contained in the prior art of record within the body of this action for the convenience of the Applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply. Applicant, in preparing the response, should consider fully the entire reference as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.
10. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vollmar (US-PAT-NO: US 6,474,187 B1) in view of Hughes (US-PAT-NO: US 6,724,165 B2), further in view of Kiyosuke (Japanese Publication No 2002-166831), and further in view of Kuhn (PGPUB-NO: US 2002/0104705 A1).

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Claim 1:

Vollmar shown, discloses the following limitations:

A steering wheel, comprising:

- *a wheel section at least including a core of a predetermined shape (see at least Figs 1 and 4);*
and
- *a controller mounted on the wheel section for controlling a predetermined device (see at least Fig 1),*

Vollmar does not disclose the following limitations, but Hughes et al. however, as shown, does:

wherein the controller includes:

- *a supporting section having a space whose shape is formed corresponding to the core and having a cylindrical outer surface with a predetermined central axis (see at least Fig 3, item # 46);*
- *a rotating section having a cylindrical inner surface that is substantially a same as that of the cylindrical outer surface of the supporting section in diameter and that is slidably mounted on the cylindrical outer surface of the supporting section, to rotate about a the predetermined central axis (see at least Fig 3 item # 26); and*
- *at least one switch for outputting a signal in response to a rotation of the rotating section (see at least Fig 3 item # 34), and*

wherein the supporting section

- *accommodates the core in the space for being fixed to the core (see at least Fig 3 items # 26 and 46).*

It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the throttle assembly of Hughes on the steering wheel device of Vollmar. As stated in the Abstract, paragraph 57, of the foreign reference (Kiyosuke) provided by the Applicant, "PROBLEM TO BE SOLVED: To provide a steering wheel device equipped with such functions as accelerating and decelerating a vehicle, generating an emergency stop of engine, unlocking the door(s), etc., which allows

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manipulating quickly without separating the hand(s) from the steering wheel in the case of emergency and whereby it is possible for even a physically handicapped person with disorder in the lower body to drive the vehicle. SOLUTION: A rotary part 3 is provided at the circumference of a ring-shaped wheel 1 attached to the shaft end of the steering wheel, and a switch for the drive of vehicle or operating part of the accessory devices of the vehicle is installed between the rotary part 3 and the fixation part 2 of the wheel 1 mating with the part 3, and thereby the drive of the vehicle or the operation of the accessory devices can be made by rotating the rotary part 3."

In addition, Kuhn discloses in the Abstract, paragraph 57, "A steering wheel assembly for an automobile having integrated brake and throttle controls, said assembly comprising a steering wheel having a rim and a first twist grip having longitudinal axis and a second twist grip having a longitudinal axis, said first twist grip and said second twist grip being integral with said rim of steering wheel, wherein rotation of said first twist grip around its longitudinal axis operates said brake, and rotation of said second twist grip around its longitudinal axis operate said throttle."

Claim 2:

The combination of Vollmar/Hughes/Kiyousuke/Kuhn discloses the steering wheel system as shown in the rejection of claim 1:

The steering wheel according to claim 1 (shown above in the rejection of claim 1),

Furthermore, Vollmar shown, discloses the following limitations:

- *wherein the controller is mounted between at least a right or left end of the wheel section and an upper end thereof (see at least Fig 1).*

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Claim 3:

The combination of Vollmar/Hughes/Kiyosuke/Kuhn discloses the steering wheel system as shown in the rejection of claim 1:

The steering wheel according to claim 1 (shown above in the rejection of claim 1),

Furthermore, Vollmar shown, discloses the following limitations:

- *wherein the rotating section is operable to rotate about the predetermined rotational axis within a range from a first angle to a second angle (see at least Fig 1).*

Claim 4:

The combination of Vollmar/Hughes/Kiyosuke/Kuhn discloses the steering wheel system as shown in the rejection of claim 1:

The steering wheel according to claim 1 (shown above in the rejection of claim 1),

Furthermore, Vollmar shown, discloses the following limitations:

- *wherein the rotating section is operable to rotate about the predetermined rotational axis from a predetermined reference position in two directions (see at least Fig 1).*

Claim 6:

The combination of Vollmar/Hughes/Kiyosuke/Kuhn discloses the steering wheel system as shown in the rejection of claim 4:

The steering wheel according to claim 4 (shown above in the rejection of claim 4),

Furthermore, Hughes shown, discloses the following limitations:

- *further comprising a neutral position locking mechanism including at least two elastic members for locking the rotating section in the reference position by exerting a force in a direction opposite to a rotation of the rotating section (see at least Fig 3 items # 48 and 52 , column 5 lines 39-42 "... a throttle biasing element 48, throttle biasing element 52 ..., and column 10 lines 19-22 "... the throttle is biased toward a neutral resting position ..."). It would have been obvious to one of ordinary skill in the art at the time of the invention, to set a neutral position locking mechanism for increased safety in operating the motor vehicle. As shown in Hughes above, the neutral position locking mechanism is a structural component in the construction of a throttle.*

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Claim 7:

The combination of Vollmar/Hughes/Kiyosuke/Kuhn discloses the steering wheel system as shown in the rejection of claim 1:

The steering wheel according to claim 1 (shown above in the rejection of claim 1),

Furthermore, Hughes shown, discloses the following limitations:

- *wherein a value of a rotational torque of the rotating section is selected so that the rotating section does not rotate while steering of the wheel section is performed and so that a driver is allowed to operate the rotating section smoothly (Hughes discloses controlling the biasing resistance in column 6 lines 23 – 59 "To enhance the quality of feedback to the rider regarding the relative position of the throttle, it is desirable that the biasing resistance over each range of motion controlling a different scooter function possess a different degree of resistance that is readily perceptible to the rider. ... For example, added rotational resistance may be achieved by ... The degree of resistance of the biasing elements may also be operably designed and configured to provide the throttle with a specific feel.") It would have been obvious to one of ordinary skill in the art at the time of the invention, to set a desired resistance per the teaching of Hughes shown above. As the resistance can be set, it can be set so that the rotating section does not rotate while steering of the wheel section is performed.*

Claim 8:

The combination of Vollmar/Hughes/Kiyosuke/Kuhn discloses the steering wheel system as shown in the rejection of claim 7:

The steering wheel according to claim 7 (shown above in the rejection of claim 7),

Furthermore, Hughes shown, discloses the following limitations:

- *wherein a rotational torque of the rotating section is determined on a vehicle-by-vehicle basis (Hughes discloses controlling the biasing resistance in column 6 lines 23 – 59 "To enhance the quality of feedback to the rider regarding the relative position of the throttle, it is desirable that the biasing resistance over each range of motion controlling a different scooter function possess a different degree of resistance that is readily perceptible to the rider. ... For example, added*

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rotational resistance may be achieved by ... The degree of resistance of the biasing elements may also be operably designed and configured to provide the throttle with a specific feel.") It would have been obvious to one of ordinary skill in the art at the time of the invention, to set a desired resistance on a vehicle-by-vehicle basis.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Albert (US-PAT-NO: US 2,793,262 A) discloses a steering wheel mounted turn signal control switch.
- Boll (PUB-NO: DE 195 39 847 C1) discloses a switching element integrated into a steering wheel rim.
- Gillbrand et al. (US-PAT-NO: US 5,335,743 A) discloses a steering wheel fitted with a control.
- Ha (US-PAT-NO: US 6,566,616 B1) discloses a multiple switch module that is adaptable for inclusion in stalk switches.
- Herbert (US-PAT-NO: US 1,500,191 A) discloses a pair of switches attached to the rim of a steering wheel.
- Horsch (PUB-NO: DE 100 11 129 A1) discloses controls built into a steering wheel rim.
- Miller et al. (US-PAT-NO: US 5,808,374 A) discloses easy to utilize switches including a rotary switch that rotates on a steering wheel rim.
- Mozer et al. (US-PAT-NO: US 6,060,671 A) discloses a rotary switch.
- Parada (US-PAT-NO: US 5,855,144 A) discloses a steering wheel including controls.
- Tueri (US-PAT-NO: US 5,520,066 A) discloses an operating device disposed on a steering wheel.

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Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Doron Fields** whose telephone number is **571.270.3107**. The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **JAMES A. REAGAN** can be reached at **571.272.6710**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair> <<http://pair-direct.uspto.gov>>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866.217.9197** (toll-free).

Any response to this action should be mailed to:

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or faxed to **571-273-8300**.

Hand delivered responses should be brought to the **United States Patent and Trademark Office Customer Service Window**:

Randolph Building
401 Dulany Street
Alexandria, VA 22314.

November 16, 2007
/Doron D Fields/
/JAMES A REAGAN/Supervisory Patent Examiner, Art Unit 4143